

WHAT IS CLAIMED IS:

1. A virtual space control data receiving apparatus comprising:

stream data receiving means for receiving a plurality of stream data for controlling a dynamic virtual space, according to the type of each stream data;

manual data input means for inputting control data for an object to be controlled in the virtual space; and

control data output means for outputting the control data input by the manual data input means, for the object controlled by the manual data input means, and outputting the stream data received by the stream data receiving means, for the other objects.

2. A virtual space control data receiving apparatus comprising:

stream data receiving means for receiving a plurality of stream data for controlling a dynamic virtual space, according to the type of each stream data;

manual data input means for inputting selection data for selecting an object to be controlled in the virtual space, and control data for the selected object; and

control data output means for outputting the control data input by the manual data input means, for the object selected by the manual data input means, and outputting the stream data received by the stream data receiving means, for the other objects.

3. The virtual space control data receiving apparatus of Claim 2 further comprising:

manual control data conversion means for converting the control data input by the manual data input means, into control data suited to the object selected by the manual data input means; and

said control data output means for outputting the control data converted by the manual control data conversion means, for the object selected by the manual data input means, and outputting the stream data received by the stream data receiving means, for the other objects.

4. The virtual space control data receiving apparatus of Claim 2 further comprising:

manual data transmission means for transmitting the selection data and the control data which are input by the manual data input means, to another virtual space control data receiving apparatus;

manual data receiving means for receiving selection data and control data which are input to another virtual space control data receiving means; and

said control data output means for outputting the control data input by the manual data input means, for the object selected by the manual data input means, and outputting the

control data received by the manual data receiving means, for the object controlled by the selection data output from the manual data receiving means, and outputting the stream data received by the stream data receiving means, for the other objects.

5. The virtual space control data receiving apparatus of Claim 3 further comprising:

manual data transmission means for transmitting the selection data and the control data which are input by the manual data input means, to another virtual space control data receiving apparatus;

manual data receiving means for receiving selection data and control data which are input to another virtual space control data receiving means;

said manual control data conversion means for converting the control data output from the manual data input means and the manual data receiving means, into control data suited to the objects to be controlled by the selection data; and

said control data output means for outputting the control data converted by the manual control data conversion means, for the object selected by the manual data input means and the object to be controlled by the selection data output from the manual data receiving means, and outputting the stream data received by the stream data receiving means, for the other objects.

a 6. The virtual space control data receiving apparatus according to <sup>Claim 1</sup> ~~any of Claims 1 to 5~~, further comprising:

scene data generation means for generating scene data for constituting the virtual space from the data output from the control data output means;

drawing means for generating image data on the basis of the scene data generated by the scene data generation means; and

display means for displaying the image data generated by the drawing means.

7. The virtual space control data receiving apparatus of Claim 6, further comprising audio output means for outputting audio on the basis of the data output from the control data output means.

a 8. The virtual space control data receiving apparatus according to <sup>Claim 1</sup> ~~any of Claims 1 to 4~~ wherein said control data output means outputs the control data for the object to be controlled with the data input by the manual data input means, in synchronization with the stream data for the other objects.

9. A virtual space control data receiving apparatus comprising:

stream data receiving means for receiving stream data, and dividing the stream data into motion stream data and other stream data to be output;

manual control data input means for inputting motion data of

an object or a part of an object to be motion-controlled manually; and

motion control data output means for outputting, as scene generation motion data, the motion data supplied from the manual control data input means, for the object or part to be controlled with the motion data which is input by the manual control data input means, and outputting the motion stream data supplied from the stream data receiving means, for the other objects or parts.

10. The virtual space control data receiving apparatus of Claim 9 further comprising:

control object selection means for inputting selection data for selecting an object or a part of an object, which is to be motion-controlled manually;

said manual control data input means for inputting motion data for the object or part selected by the control object selection means; and

said motion control data output means for outputting, as scene generation motion data, the motion data supplied from the manual control data input means, for the object or part selected by the control object selection means, and outputting the motion stream data supplied from the stream data receiving means, for the other objects or parts.

11. A virtual space control data receiving apparatus comprising:

stream data receiving means for receiving stream data, and dividing the stream data into motion stream data and other stream data to be output;

manual control data input means for inputting control data for an object or a part of an object to be motion-controlled manually;

manual control data conversion means for converting the control data input by the manual control data input means, into motion data suited to the object or part to be controlled; and

motion control data output means for outputting, as scene generation motion data, the motion data output from the manual control data conversion means, for the object or part to be controlled with the control data which is input by the manual control data input means, and outputting the motion stream data supplied from the stream data receiving means, for the other objects or parts.

12. The virtual space control data receiving apparatus of Claim 11 further comprising:

control object selection means for inputting selection data for selecting an object or a part of an object, which is to be motion-controlled manually;

said manual control data input means for inputting control data for the object or part selected by the control object selection means; and

said motion control data output means for outputting, as scene generation motion data, the motion data supplied from the manual control data conversion means, for the object or part selected by the control object selection means, and outputting the motion stream data supplied from the stream data receiving means, for the other objects or parts.

13. The virtual space control data receiving apparatus of Claim 9 further comprising:

manual control data transmission means for transmitting motion data of an object or a part of an object to be controlled, which is input by the manual control data input means, to the outside;

manual control data receiving means for receiving motion data of an object or a part of an object to be controlled, which is transmitted from the outside; and

said manual control data output means for outputting, as scene generation motion data, the motion data output from the manual control data input means, for the object or part to be controlled by the manual control data input means, and outputting the motion data received by the motion control data receiving means, for the object or part to be controlled by the motion data received by the manual control data receiving means, and outputting the motion stream data output from the stream data receiving means, for the other objects or parts.

14. The virtual space control data receiving apparatus of Claim 10 further comprising:

manual control data transmission means for transmitting motion data of an object or a part of an object to be controlled, which is input by the manual control data input means, to the outside;

manual control data receiving means for receiving motion data of an object or a part of an object to be controlled, which is transmitted from the outside;

selection data transmission means for transmitting the selection data input by the control object selection means, to the outside;

selection data receiving means for receiving selection data transmitted from the outside; and

said motion control data output means outputting, as scene generation motion data, the motion data output from the manual control data input means, for the object or part selected by the control object selection means, and outputting the motion data received by the manual control data receiving means, for the object or part selected by the selection data output from the selection data receiving means, and outputting the motion stream data output from the stream data receiving means for the other objects or parts.



15. The virtual space control data receiving apparatus of Claim 11 further comprising:

manual control data transmission means for transmitting control data for an object or a part of an object to be controlled, which is input by the manual control data input means, to the outside;

manual control data receiving means for receiving control data of an object or a part of an object to be controlled, which is transmitted from the outside;

said manual control data conversion means for converting the control data input by the manual control data input means and the control data received by the manual control data receiving means, into motion data suited to the objects or parts to be controlled; and

said motion control data output means for outputting, as scene generation motion data, the motion data output from the manual control data conversion means, for the object or part to be controlled with the control data input by the manual control data input means and the object or part to be controlled by the control data received by the manual control data receiving means, and outputting the motion stream data supplied from the stream data receiving means, for the other objects or parts.

16. The virtual space control data receiving apparatus of Claim 12 further comprising:

manual control data transmission means for transmitting control data for an object or a part of an object to be controlled, which is input by the manual control data input means, to the outside;

manual control data receiving means for receiving control data of an object or a part of an object to be controlled, which is transmitted from the outside;

selection data transmission means for transmitting the selection data input by the control object selection means, to the outside;

selection data receiving means for receiving selection data transmitted from the outside;

said manual control data conversion means for converting the control data input by the manual control data input means and the control data received by the manual control data receiving means, into motion data suited to the objects or parts selected by the selection data output from the control object selection means and the selection data receiving means; and

said motion control data output means for outputting, as scene generation motion data, the motion data output from the manual control data conversion means, for the objects or parts selected by the selection data from the control object selection means and the selection data receiving means, and outputting the motion stream data output from the stream data receiving means, for the other objects or parts.

a 17. The virtual space control data receiving apparatus according to ~~any of Claims 9 to 12~~, wherein said motion control data output means outputs the scene generation motion data for the object or part to be controlled with the data input by the manual control data input means, in synchronization with the scene generation motion data for the other objects or parts.

a 18. The virtual space control data receiving apparatus according to ~~any of Claims 13 to 16~~, wherein said motion control data output means outputs the scene generation motion data for the object or part to be controlled with the data input by the manual control data input means and the scene generation motion data for the object or part to be controlled with the data received by the manual control data receiving means, in synchronization with the scene generation motion data for the other objects or parts.

a 19. The virtual space control data receiving apparatus according to ~~any of Claims 11, 12, 15 and 16~~, wherein tabled conversion data are used when the manual control data conversion means converts the inputted control data to motion data of an object of a part of an object.

a 20. The virtual space control data receiving apparatus according to ~~any of Claims 11, 12, 15 and 16~~, wherein tabled key conversion

data are interpolated when the manual control data conversion means converts the inputted control data to motion data of an object of a part of an object.

a 21. The virtual space control data receiving apparatus according to Claim 11 ~~to any of Claims 11, 12, 15 and 16~~, wherein a neural network which has learned in advance is used when the manual control data conversion means converts the inputted control data to motion data of an object of a part of an object.

a 22. The virtual space control data receiving apparatus according to Claim 11 ~~to any of Claims 11, 12, 15 and 16~~, wherein physical calculation for expressing physical characteristics of the selected object or part is used when the manual control data conversion means converts the inputted control data to motion data of an object of a part of an object.

a 23. The virtual space control data receiving apparatus according to Claim 9 ~~to any of Claims 9 to 16~~ further comprising:

scene generation means for generating scene data from the scene generation motion data output from the motion control data output means and from other computer graphics data required for generating a scene;

drawing means for generating an image from the scene data generated by the scene generation means; and

display means for displaying the image data generated by the drawing means.

24. A virtual space control data transmission and reception system comprising a virtual space control data transmission apparatus for transmitting a plurality of stream data for controlling a dynamic virtual space, in accordance with the type of each stream data; and a plurality of virtual space control data receiving apparatuses:

wherein each of the virtual space control data receiving apparatuses comprises:

stream data receiving means for receiving the stream data transmitted from the virtual space control data transmission apparatus, in accordance with the type of the stream data;

manual data input means for inputting selection data for selecting an object to be controlled in the virtual space, and control data for the selected object;

manual data transmission means for transmitting the selection data and the control data input by the manual data input means, to another virtual space control data receiving apparatus;

manual data receiving means for receiving selection data and control data input to another virtual space control data receiving apparatus; and

control data output means for outputting the control data input by the manual data input means, for the object selected by

the manual data input means, and outputting the control data received by the manual data receiving means, for the object selected by the selection data of the manual data receiving means, and outputting the stream data received by the stream data receiving means, for the other objects.

25. A virtual space control data transmission and reception system comprising a virtual space control data transmission apparatus for transmitting a plurality of stream data for controlling a dynamic virtual space, in accordance with the type of each stream data; a plurality of virtual space control data receiving apparatuses; and a manual control data transmission means:

wherein each of the virtual space control data receiving apparatuses comprises:

stream data receiving means for receiving the stream data transmitted from the virtual space control data transmission apparatus, in accordance with the type of the stream data;

manual data input means for inputting selection data for selecting an object to be controlled in the virtual space, and control data for the selected object;

manual data transmission means for transmitting the selection data and the control data input by the manual data input means, to the manual control data transmission means;

manual data receiving means for receiving selection data and

control data input to another virtual space control data receiving apparatus, which data are transmitted from the manual control data transmission means; and

control data output means for outputting the control data input by the manual data input means, for the object selected by the manual data input means, and outputting the control data received by the manual data receiving means, for the object selected by the selection data of the manual data receiving means, and outputting the stream data received by the stream data receiving means, for the other objects.

26. A virtual space control data receiving method comprising:

stream data receiving step of receiving a plurality of stream data for controlling a dynamic virtual space, according to the type of each stream data;

manual data input step of inputting control data for an object to be controlled in the virtual space; and

control data output step of outputting the control data input by the manual data input means, for the object controlled in the manual data input step, and outputting the stream data received in the stream data receiving step, for the other objects.

27. A virtual space control data receiving method comprising:

stream data receiving step of receiving a plurality of stream data for controlling a dynamic virtual space, according to the

type of each stream data;

manual data input step of inputting selection data for selecting an object to be controlled in the virtual space, and control data for the selected object; and

control data output step of outputting the control data input in the manual data input step, for the object selected in the manual data input step, and outputting the stream data received in the stream data receiving step, for the other objects.

28. A virtual space control data receiving method comprising:

stream data receiving step of receiving stream data, and dividing the stream data into motion stream data and other stream data to be output;

manual control data input step of inputting motion data of an object or a part of an object to be motion-controlled manually; and

motion control data output step of outputting, as scene generation motion data, the motion data supplied from the manual control data input step, for the object or part to be controlled with the motion data which is input in the manual control data input step, and outputting the motion stream data supplied from the stream data receiving step, for the other objects or parts.

29. A virtual space control data receiving method comprising:

stream data receiving step of receiving stream data, and



dividing the stream data into motion stream data and other stream data to be output;

manual control data input step of inputting control data for an object or a part of an object to be motion-controlled manually;

manual control data conversion step of converting the control data input in the manual control data input step, into motion data suited to the object or part to be controlled; and

motion control data output step of outputting, as scene generation motion data, the motion data output from the manual control data conversion step, for the object or part to be controlled with the control data which is input in the manual control data input step, and outputting the motion stream data supplied from the stream data receiving step, for the other objects or parts.

30. A recording medium containing a virtual space control data receiving program for receiving data for controlling a virtual space, said program comprising:

stream data receiving step of receiving a plurality of stream data for controlling a dynamic virtual space, according to the type of each stream data;

manual data input step of inputting control data for an object to be controlled in the virtual space; and

control data output step of outputting the control data input

by the manual data input means, for the object controlled in the manual data input step, and outputting the stream data received in the stream data receiving step, for the other objects.

31. A recording medium containing a virtual space control data receiving program for receiving data for controlling a virtual space, said program comprising:

stream data receiving step of receiving a plurality of stream data for controlling a dynamic virtual space, according to the type of each stream data;

manual data input step of inputting selection data for selecting an object to be controlled in the virtual space, and control data for the selected object; and

control data output step of outputting the control data input in the manual data input step, for the object selected in the manual data input step, and outputting the stream data received in the stream data receiving step, for the other objects.

32. A recording medium containing a virtual space control data receiving program for receiving data for controlling a virtual space, said program comprising:

stream data receiving step of receiving stream data, and dividing the stream data into motion stream data and other stream data to be output;

manual control data input step of inputting motion data of an

object or a part of an object to be motion-controlled manually;  
and

motion control data output step of outputting, as scene generation motion data, the motion data supplied from the manual control data input step, for the object or part to be controlled with the motion data which is input in the manual control data input step, and outputting the motion stream data supplied from the stream data receiving step, for the other objects or parts.

33. A recording medium containing a virtual space control data receiving program for receiving data for controlling a virtual space, said program comprising:

stream data receiving step of receiving stream data, and dividing the stream data into motion stream data and other stream data to be output;

manual control data input step of inputting control data for an object or a part of an object to be motion-controlled manually;

manual control data conversion step of converting the control data input in the manual control data input step, into motion data suited to the object or part to be controlled; and

motion control data output step of outputting, as scene generation motion data, the motion data output from the manual control data conversion step, for the object or part to be controlled with the control data which is input in the manual

control data input step, and outputting the motion stream data supplied from the stream data receiving step, for the other objects or parts.

add A1  
add  
B7